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REMARKS

Subheadings are provided for the convenience of the Examiner.

Status of Claims

Claims 1-5, 7-15 and 17-20 are pending in the application. In the Office Action at hand, those claims are rejected.

Claims 1-5, 7-15 and 17-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ichikawa. In response to the Section 102(b) rejection, the Applicants respectfully submit that Claims 1-5, 7-15 and 17-20, as amended, are not anticipated by Ichikawa. Reconsideration is respectfully requested.

The Claimed Invention

Claim 1 has been amended to recite a headgear system having a display assembly mounted inside the headgear to a lower headgear portion that is located below at least one of the user's eyes. The display assembly has an adjustable mount and a viewing display mounted to the adjustable mount with direct viewing optics facing the user and positioned inward from the lower headgear portion for displaying an item of information. The direct viewing optics are located on the adjustable mount at a position below the user's eyes. The item of information can be visible when at least one of the user's eyes looks downwardly at the viewing display where the direct viewing optics face at least one of the user's downwardly looking eyes. The display assembly has a first rotatable joint that is rotatable about a rotatable horizontal axis relative to the headgear and the at least one of the user's eyes for allowing the viewing display to be tilted upwardly and downwardly. The first rotatable joint extends upwardly from a second rotatable joint that is rotatable about a rotatable vertical axis fixed relative to the headgear and in front of the at least one of the user's eyes for allowing the viewing display to rotate about the vertical axis. The viewing display is supported by the first rotatable joint between upright side members that extend upright from the second rotatable joint and surround the vertical axis on opposing sides.

Claim 9, as amended also recites a headgear system, and Claims 11 and 19, as amended, are method claims that generally parallel Claims 1 and 9, as amended. Support for the amendments to Claims 1, 9, 11 and 19 is found at least in FIGs. 1-5, and page 5, line 9 through page 7, line 22 of the Specification as originally filed. In addition, Claims 1, 3-5, 7-15 and 17-20 have been amended to overcome the rejections under 35 U.S.C. § 112, second paragraph.

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Advantages of the Claimed Invention

In embodiments of the present invention, the display assembly can be mounted to the lower headgear portion and have a viewing display mounted to an adjustable mount with direct viewing optics facing the user and positioned inward from the lower headgear portion for viewing at least one or more items of information and images inside the headgear. The direct viewing optics can be located on the adjustable mount in a position that is below the user's eyes so that normal distance vision is not obscured, the line of sight of the user passing over the direct viewing optics. The information and images can be seen clearly and with sufficient brightness when the user's eye looks downwardly at the viewing display because the direct viewing optics are positioned to face and are substantially in line with the downwardly looking eye, such that the effect of ambient daylight reflecting off the viewing display, which can obscure viewing, can be limited.

The claimed display assembly can be adjusted to change the orientation of the viewing display inside the headgear to provide suitable optical alignment for different users. For example, referring to the embodiment depicted in FIGs. 1-5, display 20 can tilt up and down relative to the user's head 32 about a first rotatable joint having a horizontal axis H relative the head gear and the user's eyes, and can, therefore, be adjusted for the vertical position of eyes 34 or 36. The first rotatable joint extends upwardly from a second rotatable joint. Two upright side members 18 can extend upwardly from the second rotatable joint and surround the fixed vertical axis V on opposing sides. The vertical axis V is fixed relative to the headgear and in front of the user's eyes. The viewing display 20 can be rotatably mounted about the first rotatable joint between the upright side members 18 along the horizontal axis H. Surrounding the fixed vertical axis with the opposed upright side members 18 can position the first and second joints closely together, thereby minimizing space requirements. The display 20 and upright side members 18 can be rotated together about the second rotatable joint about the fixed vertical axis V, which allows easy, consistent and stable adjustment for the horizontal or lateral position of a particular eye without affecting the vertical adjustment. The joints in the claimed display assembly are rotatable about the horizontal H and vertical V axes to allow positioning of the display and the direct viewing optics in an orientation suitable for a particular location of the eye 34 or 36, and by being in the claimed configuration, can be small and compact, in order to fit within the space

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constraints of headgear, such as a helmet, and yet provide enough room to be adjusted by a gloved hand. The joints can remain in desired orientations until moved by the user, by sizing the tolerances of the components to provide the joints with frictional drag.

The Ichikawa Patent

In contrast to Applicants claimed display assembly, Ichikawa discloses in FIG. 1 helmet 5 having wind shield 6. A display unit 11 is positioned in the lower portion of helmet 5 and angled to face away from the user for projecting images outwardly onto wind shield 6 of helmet 5 for viewing. Windshield 6 forms the viewing display and must be lowered into position in front of the user's eyes for viewing.

The display unit 11 in Ichikawa is elongate and the top of display unit 11 is mounted between horizontal holding arms 17 by a horizontal support shaft 18 (FIGs. 2 and 3). Horizontal holding arms 17 extend horizontally from a vertical plate shaped unit holding member 15. Unit holding member 15 is mounted to helmet 5 by horizontal pin 16 that is oriented 90° relative to support shaft 18 and is positioned away from horizontal holding arms 17 near the bottom of display unit 11. Horizontal support shaft 18 allows display unit 11 to tilt forward and backward relative to unit holding member 15 and helmet 5 about a first horizontal axis, and horizontal pin 16 allows unit holding member 15, and consequently display unit 11, to tilt side-to-side relative to helmet 5 about a second horizontal axis. Display unit 11 can be locked in place by tightening a curved adjusting disk 20 with respect to an adjusting shaft 19 with a screw 21. The adjusting shaft 19 extends from the bottom of display unit 11. FIG. 4 shows that the adjusting shaft 19 of FIGs. 2 and 3 has a disk which is fitted between two separate or individual curved side pieces, against which the disk 20 is tightened. Column 9, lines 28-31 of Ichikawa discloses that adjusting disk 20 can be moved or rocked forward, backward, tilting the shaft 19 to the left or to the right, to rock, display unit 11 about the two horizontal axes of horizontal pin 16 and horizontal shaft 18. In Ichikawa, there is no rotation of disk 20 or display 11 about a vertical axis that is fixed relative to the head gear and in front of the user's eyes, or a viewing display supported by a first rotatable joint between upright side members that extend upright from a second rotatable joint and surround the fixed vertical axis on opposing sides, as in the claimed invention. Spacing support pin 16 away from horizontal holding arms 17 near the bottom of display unit 11 and close to adjusting shaft 19 provides adjusting disk 20 with a desired amount

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or range of rocking for adjustment about pin 16. This mounting, pivoting and locking arrangement of display unit 11 by such spaced-apart components results in a larger design that requires an extended amount of space, in comparison with the claimed invention, and does not provide the same adjustment to compensate for the lateral position of an eye.

FIG. 32 of Ichikawa depicts helmet 5 having left AL and right AR display locations on windshield 6 for viewing at left EL and right ER visual point positions. A pair of openings 74a and 74b are also found in nose guard 74 of helmet 5. FIG. 34 additionally depicts correcting optical systems, 737 and 738, reflecting mirrors 734, 735, and 736, a beam splitter 733 and lens 732, which are associated with display element 731. These components do not form first and second bases as claimed in the present invention.

Accordingly, Claims 1-5, 7-15 and 17-20, as amended, are not anticipated by Ichikawa, since Ichikawa does not teach or suggest a "display assembly having a first rotatable joint that is rotatable about a rotatable horizontal axis relative to said headgear and said at least one of the user's eyes for allowing the viewing display to be tilted upwardly and downwardly, and the first rotatable joint extending upwardly from a second rotatable joint that is rotatable about a rotatable vertical axis fixed relative to said headgear and in front of said at least one of the user's eyes for allowing the viewing display to rotate about the vertical axis, the viewing display being supported by the first rotatable joint between upright side members that extend upright from the second rotatable joint and surround the vertical axis on opposing sides," as recited in Claim 1, as amended, and similarly in Claims 9, 11 and 19, as amended. Therefore, Claims 1-5, 7-15 and 17-20, as amended, are in condition for allowance. Reconsideration is respectfully requested.

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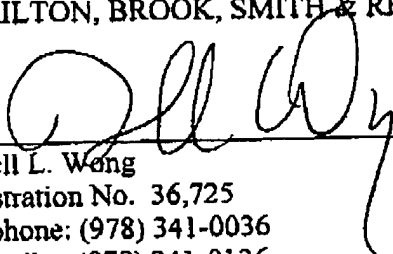
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CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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